



METER INSTALLATION, INSPECTION, AND TESTING SOP

SOP #351

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Date: 01/31/2018

SOP VERSION CONTROL

Revision No	Revision Date	Page No(s)	Description	Approved by

STAFF ACKNOWLEDGEMENT

I certify that the requirements of this SOP have been communicated to me and that I am trained in its use. A copy of this page will be distributed to the employee training record file.

Name	Date

APPROVAL SIGNATURES

Prepared by: Arcadis U.S., Inc. Date: 01/31/2018

Approved by: _____ Date: _____

1 DEFINITIONS AND ACRONYMS

AWWA	American Water Works Association
EAM	enterprise asset management
PPE	personal protective equipment

2 KEY PERSONNEL AND RESPONSIBILITIES

- Water Distribution Superintendent:
 - Maintain water meter testing schedule and record database.
 - Generate work orders for routine water meter testing and repairs as well as investigations into water meter complaints.
- Water Distribution Operator:
 - Perform field tests of water meters as generated by work orders.
 - Prepare records of field testing and repairs for each meter and enter into enterprise asset management (EAM) system.

3 SCOPE/PURPOSE

The accuracy of water meters is directly related to utility revenue and should be monitored and tested regularly. A comprehensive field testing program schedule should be set up to ensure the timely repair and replacement of malfunctioning meters, giving priority to large meters that account for a larger share of water use and revenue. Water meters can be tested in the field or temporarily removed from service for shop testing.

- Residential water meters – The accuracy of new meters should be certified by the manufacturer, in accordance with American Water Works Association (AWWA) Manual M6, Water Meters - Selection, Installation, Testing and Maintenance. Meters should be scheduled for regular replacement as a component of the asset management program.
- Commercial water meters – The program determines the accuracy of representative samples of existing and newly purchased meters on an ongoing basis to maintain operation within applicable AWWA accuracy standards through a program of repair and/or replacement. The program should also include a review of meter type and size. The accuracy of new meters should be certified by the manufacturer in accordance with AWWA M6.

Meters throughout the distribution system may vary by type and manufacturer. This SOP covers the general guidelines for water meter testing and record keeping and should be used in conjunction with manufacturer's recommendations and instructions and AWWA M6.

4 HEALTH AND SAFETY

Water meters are often located on customer property. Provide advance notice to the customer for any meter testing and assess the area for personal safety. Additionally, the following PPE should be worn:

- City employee identification
- Safety glasses
- Steel-toed boots
- Work gloves

5 PROCEDURE

Equipment Required:

- Test equipment and kits as recommended by the meter manufacturers.
- All test kits must be calibrated prior to use and must be recalibrated as needed according to the manufacturer's recommendations to ensure that the instruments are operable and accurate when used.

Procedure:

1. Prior to arrival, provide the customer with written notice of date and approximate time of meter field testing or meter removal for shop testing.
2. If field testing, complete the test and document any observations about the condition or performance of the meter.
3. If the meter is to be shop tested, collect the meter from the property installing a temporary bypass and documenting the date and time that the water meter is removed.
4. Whether utilizing on-site or shop testing, conduct tests in accordance with manufacturer recommendations.
5. Compare the results of the test to the appropriate AWWA standard for accuracy standards for the specific type of meter being tested.
6. Document any required or performed repairs to bring meter into AWWA accuracy standards. Replace meter if necessary.
7. For shop tested meters, provide the customer with written notice of date and approximate time for reinstallation of the meter.

6 DATA RECORDING AND MANAGEMENT

Following the completion of a water meter testing work order, enter the test results into the EAM system along with any completed or necessary repairs or replacements. Add any newly installed commercial meters to the EAM system for future tracking.

7 REFERENCES

American Water Works Association. (2012). *M6 Water Meters – Selection, Installation, Testing, and Maintenance, Fifth Edition*. Denver, CO: AWWA.